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AN APPARATUS FOR THE UNIFORM RELEASE OF VOLATILE CHEMICALS
FOR USE IN CHEMOTROPIC STUDIES WITH INSECTS

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Certain chemicals have been tested as attractants for the boll weevil in connection with the collections from flight-screen traps made at the Tallulah, La., laboratory. For these tests it was desired to keep the odor of the chemicals in the immediate proximity of the screens at all times. The apparatus which was first tried did not prove very satisfactory because the chemicals were very volatile and quickly dissipated.

Upon the suggestion of P. M. Gilmer, a request was submitted to Burton E. Livingston of Riderwood, Md., for samples of atmometer bulbs that might be used for continuously volatilizing the chemicals. It was found that culls (seconds) of the sphere type atmometer bulb would serve the purpose and could be purchased at a very reasonable cost. With the cooperation of the station's chemist, F. H. Tucker, a set-up was arranged which feeds the liquid by gravity from a reservoir through a tube to the atmometer bulb to provide constant and uniform evaporation with but little wastage. The reservoir used was a 16-ounce bottle held in place by a metal holder fastened to the wooden frame of the screen. The bottle can be quickly placed in position or released from the holder by means of an adjustable screw and nut clamp. The apparatus is shown in detail in figure 1 and in position on the screen in figure 2.

Material for construction

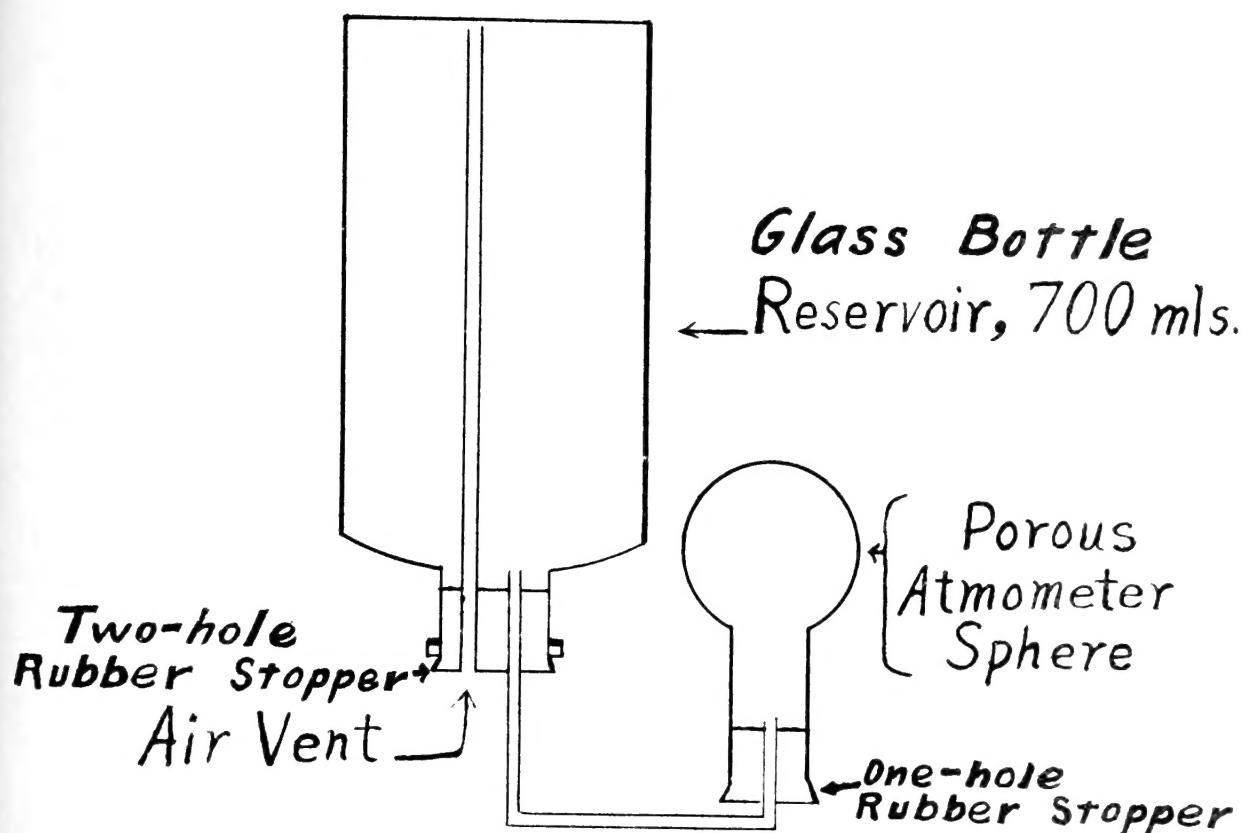
One wide-mouth bottle (size optional), one atmometer spherical bulb, 18 inches of small tubing (glass or copper), one large rubber stopper for bottle reservoir, one small rubber stopper for atmometer bulb, one piece of light metal about 1 foot square from which the holder may be cut, three 1-inch wood screws, and one stove bolt 2 inches by $\frac{1}{2}$ inch for clamp.

Operation

The apparatus may be attached to the center of the top of the frame of the screen trap, if the gas from the volatilized liquid is heavier than air, or to the bottom of the frame, if the gas is lighter than air. The amount of liquid volatilized can be controlled to some extent by the height of the reservoir above the atmometer bulb. Fill the atmometer bulb and reservoir with the chemical, being careful to note that the connecting tube is free of air. The sphere portion of the atmometer should not be touched with the hands or allowed to contact any unclean matter. The atmometer bulb should be replaced occasion-

ally with a clean one. It may be cleaned by scrubbing with a bristle brush and distilled water.

This apparatus has proved satisfactory in chemotropic studies with volatile liquids, the odor being readily detected at all times, and there being but little wastage. With the 16-ounce bottle reservoir it is necessary to refill about twice a week. By using a larger reservoir the time intervals between refilling could be lengthened to suit the operator's convenience.



Volatilization Apparatus, 1/2 size

Cross Section

Figure 1.-Cross section view of volatilization apparatus.

Two
Rubber
A

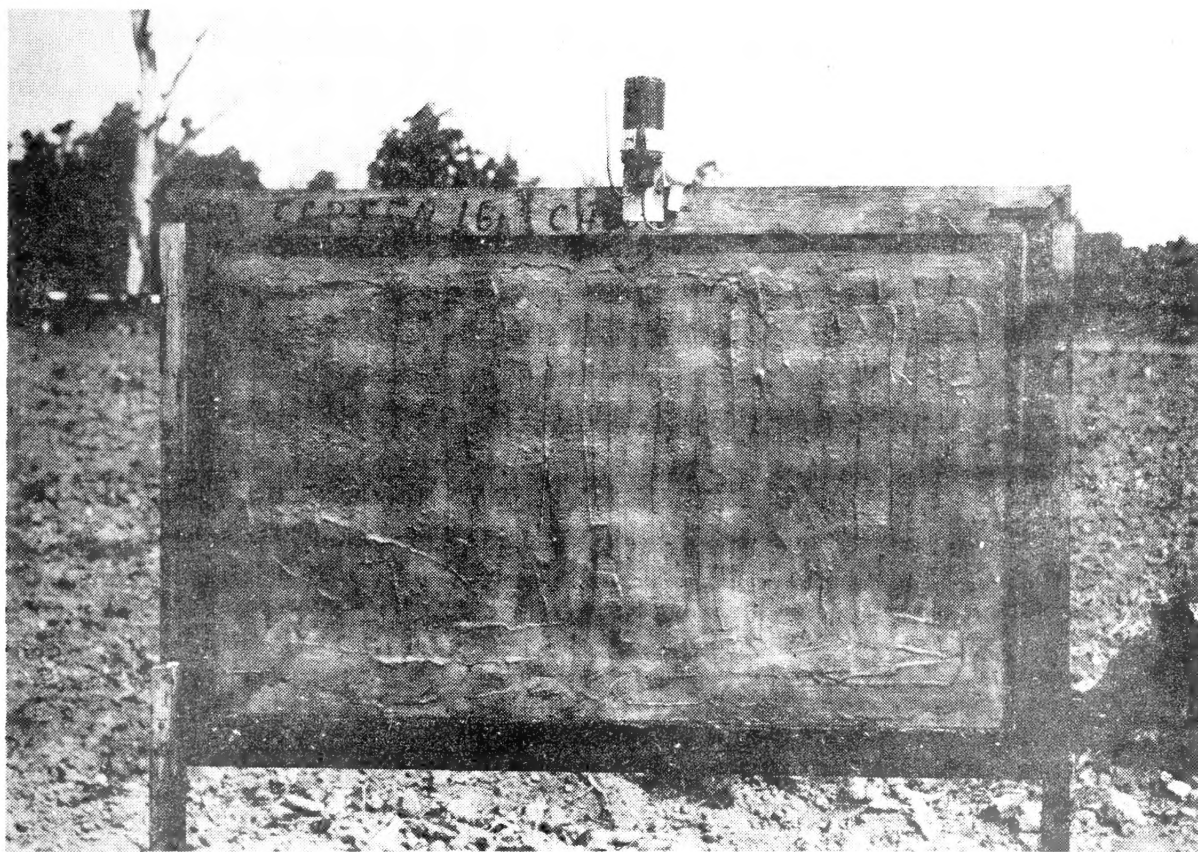


Figure 2.-Volatilization apparatus supported by metal holder attached to wooden frame of screen trap.

